

NO. 2172330  
SHEET 0  
OF 19

# DIAGNOSTIC TEST

DIPAL NAME IS DX01

TITLE HEADER TEST - DTX01  
MACH.TYPE 1620-I BY HNJ APPR.        DATE       

## ENGINEERING CHANGE HISTORY

E/C NO.	DATE	SHEETS AFFECTED
404980	5-7-64	1 - 19

E/C NO.	404980						
DATE	5-7-64						

DTX01  
1620-1 HEADER TEST  
DIPAL NAME DX01

PROGRAM DESCRIPTION

1. Purpose

This program tests the circuitry used by the following operations, which includes all of the instructions used by the SPS loader. The BTM test is incomplete, a complete test is made in DTX02.

B  
NOP  
**Console Switch Tests**  
BNR  
BD  
BNF  
TDM  
TD  
SF  
CF  
TFM  
TF  
TR  
BTM  
BB  
SAVE  
INSERT  
RELEASE/START

2. Test Method

This test is a fault detection test, and is divided into short, independent routines. The Console Switch is the first test in the program and is executed only on the first pass. All other tests have normal switch options for looping, halting, typing or bypassing error indications. A special loader, which only uses Read Numeric and Branch Instructions, is used. The cards are punched with data in columns 1 - 75, and a 5 digit card number in 76-80. The cards must be in sequence to be loaded.

3. Modification

This program cannot be independently loaded by DIPAL. It must be followed by DTX02 and the two programs will be loaded as one. The operation from the file will be the same as from cards.

4. Units of System required

This test requires the 1620 CPU and 1622 Card Reader or 1621 Paper Tape Reader.

5. E/C Level - Any level

### LOADING INSTRUCTIONS

1. Clear core by inserting 31 00003 00002.  
Release/Start
2. Load test deck from 1622 by pushing LOAD button.
3. To load from paper tape, insert

36 00000 00300

DT X01/X02 are on one tape, and will  
be loaded as one program. The operation will be the  
same as from cards.

To bypass the divide test,

Store 49 17710 , starting at

LOC 13542.

To reproduce the tape, insert  
36 00000 00300, release and press  
"SIE" button. After the tape has  
read in, insert

LOC	
00000	35 00000 00200
00012	41 07914 00000
00024	16 00013 00049
00036	16 00001 00071
00048	49 07914 00000

Release/start

When MAR reaches 17,920, stop  
by pressing "SCE" button, reset, and insert  
35 19999 00200, release/start.

CAUTION: The punch must be stopped before MAR reaches  
18,000, or the tape cannot be used with DIPAL.

### OPERATING INSTRUCTIONS

#### 1. Manual Tests

Three of the tests require manual intervention: Console Switches ON, Console Switches OFF, and the SAVE and insert test. For these tests, instructions to the operator will be typed out and the machine will halt to allow the manual operation. These tests will only be performed on the first pass.

## 2. End of First Pass

Program will typeout test complete and instructions to set Switch 4, then halt. This is only typed out after the first pass.

## 3. Program Control Switches

The Console Switches have the following functions after the switches themselves have been tested.

Switch 1      ON - Bypass all Error routines  
                  OFF - Test Switch 3 on Error

Switch 2      ON - Loop in test routine  
                  OFF - Continue to next routine

Switch 3      ON - Halt on Error if Switch 1 OFF  
                  OFF - Typeout on Error if Switch 1 OFF

Switch 4      ON - Repeat program  
                  OFF - Load next program from 1622

NOTE: The load routine examines the first program card of the next deck to see if it is DTX02. If it is, the program will be modified so that both the header test and DTX02 will be executed as one program. If the next deck is not DTX02, control will go directly to the next program.

## 4. Data Check Switches

This program does not test the indicator lights other than try to reset them. The data check switches may be set as desired.

## 5. Normal Program Halts

00512    Allow switches to be set on  
00980    Allow switches to be set off  
04196    Pass complete. Set Switch 4 and continue.

## ERROR INFORMATION

### 1. Error Halts

The following program halts are error halts. Refer to the program listing for explanations.

01268	02060	02972
01376	02168	03092
01484	02264	03236
01580	02372	03380
01676	02480	03536
01772	02600	03656
01868	02720	03908
01964	02840	04136

ERROR INFORMATION Continued

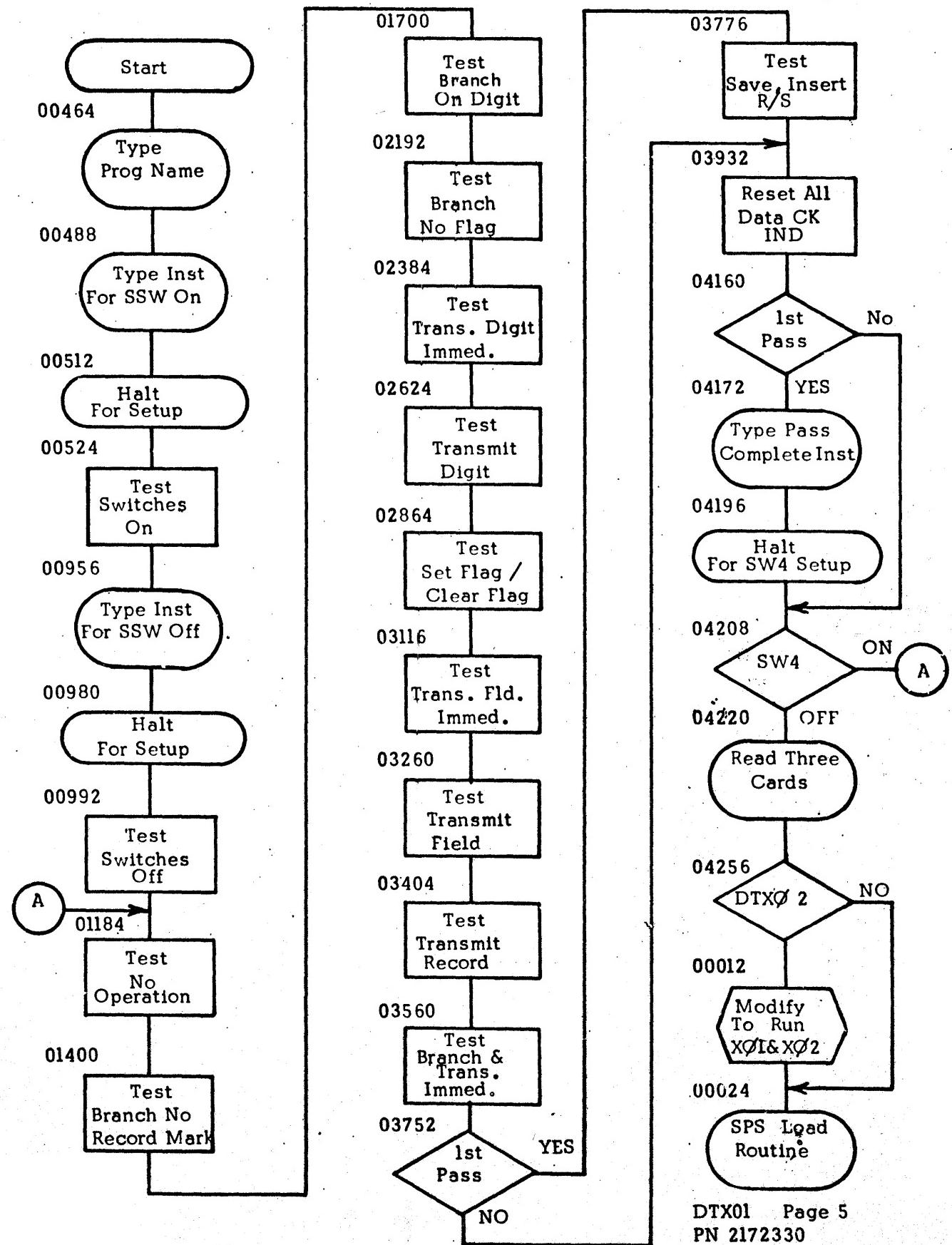
2. Error Typeouts

Error messages are typed out in the following format:

TEST T10.0, BC1 FAILED WITH SW1 ON

The tests are labeled as T10.0 through T46.0, and are sequential in the listing. The test number will appear on the first instruction of the failing routine.

DTX01 Flow Chart  
Page 1 of 1



**DTX01**  
**SPECIAL LOADER PAGE 1 of 3**

<u>LOCATION</u>	<u>INST</u>	<u>OP CODE</u>	<u>P FLD</u>	<u>Q FLD.</u>
00000	RNCD	36	00072	00500
00012	RNCD	36	00144	00500
00024	RNCD	36	00216	00500
00036	RNCD	36	00288	00500
00048	RNCD	36	10000	00500
00060	RNCD	36	10075	00500
00072	RNCD	36	10150	00500
00084	RNCD	36	10225	00500
00096	RNCD	36	10300	00500
00108	RNCD	36	10375	00500
00120	RNCD	36	10450	00500
00132	RNCD	36	10525	00500
00144	RNCD	36	10600	00500
00156	RNCD	36	10675	00500
00168	RNCD	36	10750	00500
00180	RNCD	36	10825	00500
00192	RNCD	36	10900	00500
00204	RNCD	36	10975	00500
00216	RNCD	36	11050	00500
00228	RNCD	36	11125	00500
00240	NOP	41	00324	00000
00252	NOP	41	00324	00000
00264	NOP	41	00324	00000
00276	NOP	41	00324	00000
00288	NOP	41	00324	00000
00300	B	49	10000	00000
00312	WATY	39	00327	00100
00324	H	48	42594	15543
00336	H	48	00464	14953
00348		45	440#0	40##

10000	RNCD	360040200500
10012	RNCD	360047700500
10024	RNCD	360055200500
10036	RNCD	360062700500
10048	RNCD	360070200500
10060	RNCD	360077700500
10072	RNCD	360085200500
10084	RNCD	360092700500
10096	RNCD	360100200500
10108	RNCD	360107700500
10120	RNCD	360115200500
10132	RNCD	360122700500
10144	RNCD	360130200500
10156	RNCD	360137700500
10168	RNCD	360145200500
10180	RNCD	360152700500
10192	RNCD	360160200500
10204	RNCD	360167700500
10216	RNCD	360175200500
10228	RNCD	360182700500
10240	RNCD	360190200500
10252	RNCD	360197700500
10264	RNCD	360205200500
10276	RNCD	360212700500
10288	RNCD	360220200500
10300	RNCD	360227700500
10312	RNCD	360235200500
10324	RNCD	360242700500
10336	RNCD	360250200500
10348	RNCD	360257700500
10360	RNCD	360265200500
10372	RNCD	360272700500
10384	RNCD	360280200500
10396	RNCD	360287700500
10408	RNCD	360295200500
10420	RNCD	360302700500
10432	RNCD	360310200500
10444	RNCD	360317700500
10456	RNCD	360325200500
10468	RNCD	360332700500
10480	RNCD	360340200500
10492	RNCD	360347700500
10504	RNCD	360355200500
10516	RNCD	360362700500
10528	RNCD	360370200500
10540	RNCD	360377700500
10552	RNCD	360385200500
10564	RNCD	360392700500
10576	RNCD	360400200500
10588	RNCD	360407700500
10600	RNCD	360415200500
10612	RNCD	360422700500
10624	RNCD	360430200500
10636	RNCD	360437700500
10648	RNCD	360445200500
10660	RNCD	360452700500

T0672	RNCD	360460200500
T0684	RNCD	360467700500
T0696	RNCD	360475200500
T0708	RNCD	360482700500
T0720	RNCD	360490200500
T0732	RNCD	360497700500
T0744	RNCD	360505200500
T0756	RNCD	360512700500
T0768	RNCD	360520200500
T0780	RNCD	360527700500
T0792	RNCD	360535200500
T0804	RNCD	360542700500
T0816	RNCD	360550200500
T0828	RNCD	360557700500
T0840	RNCD	360565200500
T0852	RNCD	360572700500
T0864	RNCD	360580200500
T0876	RNCD	360587700500
T0888	RNCD	360595200500
T0900	RNCD	360602700500
T0912	RNCD	360610200500
T0924	RNCD	360617700500
T0936	RNCD	360625200500
T0948	RNCD	360632700500
T0960	RNCD	360640200500
T0972	RNCD	360647700500
T0984	RNCD	360655200500
T0996	RNCD	360662700500
T1008	RNCD	360670200500
T1020	RNCD	360677700500
T1032	RNCD	360685200500
T1044	RNCD	360692700500
T1056	RNCD	360700200500
T1068	RNCD	360707700500
T1080	RNCD	360715200500
T1092	RNCD	360722700500
T1104	RNCD	360730200500
T1116	RNCD	360737700500
T1128	RNCD	360745200500
T1140	RNCD	360752700500
T1152	BNR	450044018117
T1164	B	490422000000
T1176	H	480000000000

00440  
00440 34 01184 00102  
00452 16 00441 000M9  
00464 39 07363 00100  
00476 34 00000 00102

\* DT X01  
\* 1620-1 HEADER TEST  
DORG 440  
START RCTY T24.5  
TFM \*-11,49,10  
WATY HDR,,, TEST WATY OPN BY TYPING TEST NAME  
RCTY

00488 34 00000 00102  
00500 39 07049 00100  
00512 48 00000 00000  
00524 46 00560 00100  
00536 34 00000 00102  
00548 39 04325 00100

\* THIS SECTION TESTS THE PROGRAM SWITCH CIRCUITRY  
\*  
\* THE FIRST TEST IS WITH ALL SWITCHES ON  
RCTY  
WATY VIM1,,, TYPE INSTRUCTIONS TO TURN SWITCHES ON  
H,,, HALT TO ALLOW SWITCH SETTING  
T10.0 BC1 \*+36,,, TEST PROGRAM SWITCH 1  
RCTY  
WATY M10.0,,, TYPE ERROR MESSAGE

00560 46 00596 00200  
00572 34 00000 00102  
00584 39 04395 00100

T11.0 BC2 \*+36,,, TEST PROGRAM SWITCH 2  
RCTY  
WATY M11.0,,, TYPE ERROR MESSAGE

00596 46 00632 00300  
00608 34 00000 00102  
00620 39 04465 00100

T12.0 BC3 \*+36,,, TEST PROGRAM SWITCH 3  
RCTY  
WATY M12.0,,, TYPE ERROR MESSAGE

00632 46 00668 00400  
00644 34 00000 00102  
00656 39 04535 00100

T13.0 BC4 \*+36,,, TEST PROGRAM SWITCH 4  
RCTY  
WATY M13.0,,, TYPE ERROR MESSAGE

00668 46 00692 04100  
00680 49 00716 00000  
00692 34 00000 00102  
00704 39 04605 00100

\*  
\* THE NEXT SERIES TESTS THE DECODING CIRCUITS BY  
\* HAVING AN ILLEGAL MODIFIER IN Q8  
T14.0 BI \*+24,4100,, SHOULD NOT BRANCH WITH 4 IN Q8  
B \*+36,,,  
RCTY  
WATY M14.0,,, TYPE ERROR MESSAGE

00716 46 00740 04200  
00728 49 00764 00000  
00740 34 00000 00102  
00752 39 04691 00100

\*  
T15.0 BI \*+24,4200,, SHOULD NOT BRANCH WITH 4 IN Q8  
B \*+36,,,  
RCTY  
WATY M15.0,,, TYPE ERROR MESSAGE

00764 46 00788 04300  
00776 49 00812 00000  
00788 34 00000 00102  
00800 39 04777 00100

\*  
T16.0 BI \*+24,4300,, SHOULD NOT BRANCH WITH 4 IN Q8  
B \*+36,,,  
RCTY  
WATY M16.0,,, TYPE ERROR MESSAGE

00812 46 00836 04400  
00824 49 00860 00000  
00836 34 00000 00102  
00848 39 04863 00100

\*  
T17.0 BI \*+24,4400,, SHOULD NOT BRANCH WITH 4 IN Q8  
B \*+36,,,  
RCTY  
WATY M17.0,,, TYPE ERROR MESSAGE

0860 46 00884 00500  
 0872 49 00908 00000  
 C884 34 00000 00102  
 0896 39 04949 00100

\* BI XXXXX 00500 TO TEST DECODERS  
 T18.0 BI \*+24,00500,, SHOULDNT BRANCH, NO IND 05  
 B \*+36,,,  
 RCTY  
 WATY M18.0,,, TYPE ERROR MESSAGE

0908 47 00932 00100  
 0920 49 00956 00000  
 0932 34 00000 00102  
 0944 39 05035 00100

\* BNC1 WITH SWITCH 1 ON TO TEST BRANCH TEST TRIGGER  
 T19.0 BNC1 \*+24,,, SHOULD NOT BRANCH WITH SW1 ON  
 B \*+36,,,  
 RCTY  
 WATY M19.0,,, TYPE ERROR MESSAGE

\* \* \* THE NEXT TEST REQUIRES THE SWITCHES TO BE OFF \* \* \*

0956 34 00000 00102  
 0968 39 07105 00100  
 0980 48 00000 00000

\* RCTY  
 WATY VIM2,,, TYPE INSTRUCTIONS TO TURN ALL SWITCHES OF  
 H ,,, HALT TO ALLOW SWITCH SETTING

0992 47 01028 00100  
 1004 34 00000 00102  
 1016 39 05111 00100

\* T20.0 BNC1 \*+36,,, TEST BNC1 WITH PROG SW1 OFF  
 RCTY  
 WATY M20.0,,, TYPE ERROR MESSAGE

\* \* \* T21.0 BNC2 \*+36,,, TEST BNC2 WITH PROG SW2 OFF  
 RCTY  
 WATY M21.0,,, TYPE ERROR MESSAGE

\* \* \* T22.0 BNC3 \*+36,,, TEST BNC3 WITH PROG SW3 OFF  
 RCTY  
 WATY M22.0,,, TYPE ERROR MESSAGE

\* \* \* T23.0 BNC4 \*+36,,, TEST BNC4 WITH PROG SW4 OFF  
 RCTY  
 WATY M23.0,,, TYPE ERROR MESSAGE

\* \* \* T24.0 BC2 \*+24,,, BC2 WITH SW2 OFF SHOULDNT BRANCH  
 B \*+36,,,  
 RCTY  
 WATY M24.0,,, TYPE ERROR MESSAGE

\* \* \* T24.5 TEST NOP INSTRUCTION  
 NOP \*+24,1500,, INST WILL BRANCH IF IT DECODES  
 AS A 47 OR 49  
 B \*+84,,, OK  
 BC1 \*+72,,, BYPASS ERROR INDICATION IF SW1 ON  
 BC3 \*+48,,, HALT INSTEAD OF TIMEOUT IF SW3 ON  
 RCTY  
 WATY M24.5,,, TYPE ERROR MESSAGE  
 B \*+24  
 H ,,, NOP INSTRUCTION BRANCHED  
 BC2 T24.5,,, LOOP IF SW2 ON

\* \* \* T24.6 NOP \*+12,0,, INST WILL MAR CHECK IF IT DECODES

01303 00001  
 01304 47 01388 00800  
 01316 46 01388 00100  
 01328 46 01376 00300  
 01340 34 00000 00102  
 01352 39 05557 00100  
 01364 49 01388 00000  
 01376 48 00000 00000  
 01388 46 01292 00200

DC 1,\*,\*, AS A 43 OR 45  
 BNI \*+84,800,, RM IN Q11 OF NOP  
 SEE IF OPN MAR CHECKED  
 BC1 \*+72,,, BYPASS ERROR INDICATION IF SW1 ON  
 BC3 \*+48,,, HALT INSTEAD OF TYPEOUT IF SW3 ON  
 RCTY  
 WATY M24.6,,, TYPE ERROR MESSAGE  
 B \*+24  
 H \*\*,  
 BC2 T24.6,,, NOP SET MAR CHECK  
 LOOP IF SW2 ON

TEST BRANCH NO RECORD MARK OPERATION

01400 45 01424 04290  
 01412 49 01496 00000  
 01424 46 01496 00100  
 01436 46 01484 00300  
 01448 34 00000 00102  
 01460 39 05635 00100  
 01472 49 01496 00000  
 01484 48 00000 00000  
 01496 46 01400 00200

T25.0 BNR \*+24,R/M,,, TEST BNR WITH A R/M  
 GOOD, BNR DIDNT BRANCH  
 B \*+84,,,  
 BC1 \*+72,,, SKIP ERROR INDICATION IF SW1 ON  
 BC3 \*+48,,, HALT INSTEAD OF TYPEOUT IF SW3 ON  
 RCTY  
 WATY M25.0,,, TYPE ERROR MESSAGE  
 B \*+24  
 H \*\*,  
 BC2 T25.0,,, BNR BRANCHED ON A RECORD MARK  
 LOOP IF SW2 ON

01508 45 01592 04282  
 01520 46 01592 00100  
 01532 46 01580 00300  
 01544 34 00000 00102  
 01556 39 05703 00100  
 01568 49 01592 00000  
 01580 48 00000 00000  
 01592 46 01508 00200

T26.0 BNR \*+84,ZERO+2,,, TEST BNR ON DIGIT 2  
 BC1 \*+72,,, SKIP ERROR INDICATION IF SW1 ON  
 BC3 \*+48,,, HALT INSTEAD OF TYPEOUT IF SW3 ON  
 RCTY  
 WATY M26.0,,, TYPE ERROR MESSAGE  
 B \*+24  
 H \*\*,  
 BC2 T26.0,,, BNR OPN FAILED ON DIGIT 2  
 LOOP IF SW2 ON

01604 45 01688 04288  
 01616 46 01688 00100  
 01628 46 01676 00300  
 01640 34 00000 00102  
 01652 39 05767 00100  
 01664 49 01688 00000  
 01676 48 00000 00000  
 01688 46 01604 00200

T27.0 BNR \*+84,ZERO+8,,, TEST BNR ON DIGIT 8  
 BC1 \*+72,,, BYPASS ERROR INDICATION IF SW1 ON  
 BC3 \*+48,,, HALT INSTEAD OF TYPEOUT IF SW3 ON  
 RCTY  
 WATY M27.0,,, TYPE ERROR MESSAGE  
 B \*+24  
 H \*\*,  
 BC2 T27.0,,, BNR OPN FAILED ON DIGIT 8  
 LOOP IF SW2 ON

TEST BRANCH ON DIGIT OPERATION

01700 43 01784 04281  
 01712 46 01784 00100  
 01724 46 01772 00300  
 01736 34 00000 00102  
 01748 39 05831 00100  
 01760 49 01784 00000  
 01772 48 00000 00000  
 01784 46 01700 00200

T28.0 BD \*+84,ZERO+1,,, TEST BD OPN WITH DIGIT 1  
 BC1 \*+72,,, BYPASS ERROR INDICATION IF SW1 ON  
 BC3 \*+48,,, HALT INSTEAD OF TYPEOUT IF SW3 ON  
 RCTY  
 WATY M28.0,,, TYPE ERROR MESSAGE  
 B \*+24  
 H \*\*,  
 BC2 T28.0,,, BD OPN FAILED ON DIGIT 1  
 LOOP IF SW2 ON

01796 43 01880 04282  
 01808 46 01880 00100

T29.0 BD \*+84,ZERO+2,,, TEST BD OPN WITH DIGIT 2  
 BC1 \*+72,,, BYPASS ERROR INDICATION IF SW1 ON

01820 46 01868 00300	BC3	**+48,,,	HALT INSTEAD OF TYPEOUT IF SW3 ON
01832 34 00000 00102	RCTY		
01844 39 05893 00100	WATY	M29.0,,,	TYPE ERROR MESSAGE
01856 49 01880 00000	B	**+24	
01868 48 00000 00000	H	,,,	BD OPN FAILED FAILED ON DIGIT 2
01880 46 01796 00200	BC2	T29.0,,,	LOOP IF SW2 ON
*			
*			
01892 43 01976 04284	T30.0	BD	**+84,ZERO+4,,, TEST BD OPN WITH DIGIT 4
01904 46 01976 00100	BC1	**+72,,,	BYPASS ERROR INDICATION IF SW1 ON
01916 46 01964 00300	BC3	**+48,,,	HALT INSTEAD OF TYPEOUT IF SW3 ON
01928 34 00000 00102	RCTY		
01940 39 05955 00100	WATY	M30.0,,,	TYPE ERROR MESSAGE
01952 49 01976 00000	B	**+24	
01964 48 00000 00000	H	,,,	BD OPN FAILED ON DIGIT 4
01976 46 01892 00200	BC2	T30.0,,,	LOOP IF SW2 ON
*			
*			
01988 43 02072 04288	T31.0	BD	**+84,ZERO+8,,, TEST BD OPN WITH DIGIT 8
02000 46 02072 00100	BC1	**+72,,,	BYPASS ERROR INDICATION IF SW1 ON
02012 46 02060 00300	BC3	**+48,,,	HALT INSTEAD OF TYPEOUT IF SW3 ON
02024 34 00000 00102	RCTY		
02036 39 06017 00100	WATY	M31.0,,,	TYPE ERROR MESSAGE
02048 49 02072 00000	B	**+24	
02060 48 00000 00000	H	,,,	BD OPN FAILED ON DIGIT 8
02072 46 01988 00200	BC2	T31.0,,,	LOOP IF SW2 ON
*			
*			
02084 43 02108 04280	T32.0	BD	**+24,ZERO,, TEST BD OPN ON DIGIT ZERO
02096 49 02180 00000	B	**+84,,,	
02108 46 02180 00100	BC1	**+72,,,	BYPASS ERROR INDICATION IF SW1 ON
02120 46 02168 00300	BC3	**+48,,,	HALT INSTEAD OF TYPEOUT IF SW3 ON
02132 34 00000 00102	RCTY		
02144 39 06079 00100	WATY	M32.0,,,	TYPE ERROR MESSAGE
02156 49 02180 00000	B	**+24	
02168 48 00000 00000	H	,,,	BD OPN FAILED ON DIGIT ZERO
02180 46 02084 00200	BC2	T32.0,,,	LOOP IF SW2 ON
*			
*			
TEST BRANCH NO FLAG OPERATION			
02192 44 02276 04281	T33.0	BNF	**+84,ZERO+1,,, TEST BNF ON UNFLAGGED DIGIT
02204 46 02276 00100	BC1	**+72,,,	BYPASS ERROR INDICATION IF SW1 ON
02216 46 02264 00300	BC3	**+48,,,	HALT INSTEAD OF TYPEOUT IF SW3 ON
02228 34 00000 00102	RCTY		
02240 39 06141 00100	WATY	M33.0,,,	TYPE ERROR MESSAGE
02252 49 02276 00000	B	**+24	
02264 48 00000 00000	H	,,,	BNF OPN FAILED ON UNFLAGGED DIGIT
02276 46 02192 00200	BC2	T33.0,,,	LOOP IF SWITCH 2 ON
*			
*			
02288 44 02312 04280	T34.0	BNF	**+24,ZERO,, TEST BNF ON A FLAGGED ZERO
02300 49 02384 00000	B	**+84	
02312 46 02384 00100	BC1	**+72,,,	BYPASS ERROR INDICATION IF SW1 ON
02324 46 02372 00300	BC3	**+48,,,	HALT INSTEAD OF TYPEOUT IF SW3 ON
02336 34 00000 00102	RCTY		
02348 39 06215 00100	WATY	M34.0,,,	TYPE ERROR MESSAGE
02360 49 02384 00000	B	**+24	
02372 48 00000 00000	H	,,,	BNF FAILED ON A FLAGGED ZERO

\* \* TEST TRANSMIT DIGIT/TRANSMIT DIGIT IMMEDIATE

02384 15 04320 0000P	T35.0	TDM WRK-2,7,11,	TEST TDM OPN WITH FLAG 7
02396 44 02420 04320		BNF **+24,WRK-2,,	CHECK FOR FLAG
02408 43 02492 04320		BD **+84,WRK-2,,	CHECK FOR DIGIT
02420 46 02492 00100		BC1 **+72,,,	BYPASS ERROR INDICATION IF SW1 ON
02432 46 02480 00300		BC3 **+48,,,	HALT INSTEAD OF TYPEOUT IF SW3 ON
02444 34 00000 00102		RCTY	
02456 39 06287 00100		WATY M35.0,,,	TYPE ERROR MESSAGE
02468 49 02492 00000		B **+24	
02480 48 C0000 00000		H ***	TDM OPN FAILED ON A FLAG 7
02492 46 02384 00200		BC2 T35.0,,,	LOOP IF SW2 ON

02504 15 04320 00000	T36.0	TDM WRK-2,0,,	TEST TDM OPN WITH A ZERO
02516 43 02540 04320		BD **+24,WRK-2,,	SEE IF DIGIT CLEARED
02528 44 02612 04320		BNF **+84,WRK-2,,	SEE IF FLAG CLEARED
02540 46 02612 00100		BC1 **+72,,,	BYPASS ERROR INDICATION IF SW1 ON
02552 46 02600 00300		BC3 **+48,,,	HALT INSTEAD OF TYPEOUT IF SW3 ON
02564 34 00000 00102		RCTY	
02576 39 06361 00100		WATY M36.0	
02588 49 02612 00000		B **+24	
02600 48 00000 00000		H ***	TDM OPN FAILED ON A ZERO
02612 46 02504 00200		BC2 T36.0,,,	LOOP IF SW2 ON

02624 25 04320 04301	T37.0	TD WRK-2,FLD2-1,,	TEST TD OPN ON A FLAG 8
02636 44 02660 04320		BNF **+24,WRK-2,,	SEE IF FLAG GOT THERE
02648 43 02732 04320		BD **+84,WRK-2,,	SEE IF DIGIT GOT THERE
02660 46 02732 00100		BC1 **+72,,,	BYPASS ERROR INDICATION IF SW1 ON
02672 46 02720 00300		BC3 **+48,,,	HALT INSTEAD OF TYPEOUT IF SW3 ON
02684 34 00000 00102		RCTY	
02696 39 06433 00100		WATY M37.0,,,	TYPE ERROR MESSAGE
02708 49 02732 00000		B **+24	
02720 48 00000 00000		H ***	TD OPN FAILED ON A FLAG 8
02732 46 02624 00200		BC2 T37.0,,,	LOOP IF SW2 ON

02744 25 04320 04300	T38.0	TD WRK-2,FLD2-2,,	TEST TD OPN WITH A ZERO
02756 43 02780 04320		BD **+24,WRK-2,,	SEE IF DIGIT CLEARED
02768 44 02852 04320		BNF **+84,WRK-2,,	SEE IF FLAG CLEARED
02780 46 02852 00100		BC1 **+72,,,	BYPASS ERROR INDICATION IF SW1 ON
02792 46 02840 00300		BC3 **+48,,,	HALT INSTEAD OF TYPEOUT IF SW3 ON
02804 34 00000 00102		RCTY	
02816 39 06505 00100		WATY M38.0,,,	TYPE ERROR MESSAGE
02828 49 02852 00000		B **+24	
02840 48 00000 00000		H ***	TD OPN FAILED ON A ZERO
02852 46 02744 00200		BC2 T38.0,,,	LOOP IF SW2 ON

\* \* TEST SET FLAG/CLEAR FLAG OPERATION

02864 15 04322 00000	T39.0	TDM WRK,0,,	CLEAR ONE LOCATION FOR SF TEST
02876 32 04322 00000		SF WRK,,,	TEST SET FLAG OPN
02888 44 02912 04322		BNF **+24,WRK,,	SEE IF FLAG WAS SET
02900 49 02984 00000		B **+84	
02912 46 02984 00100		BC1 **+72,,,	BYPASS ERROR INDICATION IF SW1 ON
02924 46 02972 00300		BC3 **+48,,,	HALT INSTEAD OF TYPEOUT IF SW3 ON

02936 34 00000 00102	RCTY	
02948 39 06575 00100	WATY M39.0,,,	TYPE ERROR MESSAGE
02960 49 02984 00000	B **+24	
02972 48 00000 00000	H ,,,	SET FLAG FAILED
02984 46 02864 00200	BC2 T39.0,,,	LOOP IF SW2 ON
*		
*		
02996 15 04322 0000P	T40.0 TDM WRK,7,11,	SET A FLAG FOR CF TEST
03008 33 04322 00000	CF WRK,,,	TEST CLEAR FLAG
03020 44 03104 04322	BNF **+84,WRK,,	SEE IF FLAG CLEARED
03032 46 03104 00100	BC1 **+72,,,	BYPASS ERROR INDICATION IF SW1 ON
03044 46 03092 00300	BC3 **+48,,,	HALT INSTEAD OF TYPEOUT IF SW3 ON
03056 34 00000 00102	RCTY	
03068 39 06631 00100	WATY M40.0,,,	TYPE ERROR MESSAGE
03080 49 03104 00000	B **+24	
03092 48 00000 00000	H ,,,	CLEAR FLAG FAILED
03104 46 02996 00200	BC2 T40.0,,,	LOOP IF SW2 ON
*		
*		
*		TEST TRANSMIT FIELD IMMEDIATE OPERATION
*	TF **+11,0,,,	TRANSMIT A FIELD TO ITSELF TO SEE
*		IF TFM WILL END OPERATION
03116 15 04322 00000	T41.0 TDM WRK,0,,,	CLEAR TWO SLOTS FOR TFM TEST
03128 15 04321 00000	TDM WRK-1,0	
03140 16 04322 000Q7	TFM WRK,87,10,	CHECK TFM OPN WITH -87
03152 44 03176 04321	BNF **+24,WRK-1,,	TEST HI ORDER POS FOR FLAG
03164 43 03248 04322	BD **+84,WRK,,	TEST LO ORDER POS FOR DIGIT
03176 46 03248 00100	BC1 **+72,,,	BYPASS ERROR INDICATION IF SW1 ON
03188 46 03236 00300	BC3 **+48,,,	HALT INSTEAD OF TYPEOUT IF SW3 ON
03200 34 00000 00102	RCTY	
03212 39 06691 00100	WATY M41.0,,,	TYPE ERROR MESSAGE
03224 49 03248 00000	B **+24	
03236 48 00000 00000	H ,,,	TFM OF -87 FAILED.
03248 46 03116 00200	BC2 T41.0,,,	LOOP IF SW2 OPN
*		
*		
03260 15 04322 00000	T42.0 TDM WRK,0,,,	CLEAR HI AND LO POSITIONS FOR TF TEST
03272 15 04317 00000	TDM WRK-5,0	
03284 26 04322 04296	TF WRK,FLD1,,,	TEST TF OPN WITH 19375 RM
03296 45 03320 04322	BNR **+24,WRK,,	CHECK LO ORDER FOR RM
03308 43 03392 04317	BD **+84,WRK-5,,	CHECK HI ORDER FOR DIGIT
03320 46 03392 00100	BC1 **+72,,,	BYPASS ERROR INDICATION IF SW1 ON
03332 46 03380 00300	BC3 **+48,,,	HALT INSTEAD OF TYPEOUT IF SW3 ON
03344 34 00000 00102	RCTY	
03356 39 06745 00100	WATY M42.0,,,	TYPE ERROR MESSAGE
03368 49 03392 00000	B **+24	
03380 48 00000 00000	H ,,,	TF OPN FAILED ON 19375 RM
03392 46 03260 00200	BC2 T42.0,,,	LOOP IF SW2 ON
*		
*		
*		TEST TRANSMIT RECORD OPERATION
*		
03404 31 04280 04280	TR ZERO,ZERO,,	TRANSMIT A RECORD TO ITSELF TO
		SEE IF TR WILL END OPERATION.
C3416 26 04322 04312	T43.0 TF WRK,ZEROS,,	CLEAR WORK AREA FOR TR TEST
03428 31 04317 04297	TR WRK-5,FLD2-5,,	TEST TR OPN WITH -64208 RM
03440 45 03476 04322	BNR **+36,WRK,,	TEST FOR RECORD MARK
03452 44 03476 04321	BNF **+24,WRK-1,,	TEST FOR LO ORDER FLAG
03464 43 03548 04317	BD **+84,WRK-5,,	TEST FOR HI ORDER DIGIT

03476 46 03548 00100	BC1 *+72,,,	BYPASS ERROR INDICATION IF SW1 ON
03488 46 03536 00300	BC3 *+48,,,	HALT INSTEAD OF TYPEOUT IF SW3 ON
03500 34 00000 00102	RCTY	
03512 39 06797 00100	WATY M43.0,,,	TYPE ERROR MESSAGE
03524 49 03548 00000	B *+24	
03536 48 00000 00000	H ,,,	TR OPN FAILED ON -64208 RM
03548 46 03416 00200	BC2 T43.0,,,	LOOP IF SW2 ON
*		
* MAKE A SIMPLE TEST OF BTM OPN		
*		
03560 26 03703 04312	T44.0 TF NP+11,ZEROS,,	CLEAR TEST AREA FOR BTM TEST
03572 17 03704 Q768P	BTM NP+12,87687,711,	TEST BTM WITH -87687
03584 43 03668 03695	BD *+84,NP+3,,	TEST DIGIT PUT IN BY SUBROUTINE
03596 46 03668 00100	BC1 *+72,,,	BYPASS ERROR INDICATION IF SW1 ON
03608 46 03656 00300	BC3 *+48,,,	HALT INSTEAD OF TYPEOUT IF SW3 ON
03620 34 00000 00102	RCTY	
03632 39 06849 00100	WATY M44.0,,,	TYPE ERROR MESSAGE
03644 49 03668 00000	B *+24	
03656 48 00000 00000	H ,,,	BTM OPN FAILED ON -87687
03668 46 03560 00200	BC2 T44.0,,,	LOOP IF SW2 ON
03680 49 03752 00000	B CDC,,,	GO TO NEXT TEST
*		
* BTM WILL BRANCH TO THIS ROUTINE		
03692 41 00000 00000	NP NOP ,,,	DATA FROM BTM LANDS IN Q7-11
03704 44 03596 03703	BNF T44.0+36,NP+11,,	TEST FOR LO ORDER FLAG
03716 44 03596 03699	BNF T44.0+36,NP+7,,	TEST FOR HI ORDER FLAG
03728 15 03695 00009	TDM NP+3,9,,	PUT 9 IN P2 OF NOP INST
03740 42 00000 00000	BB ,,,	RETURN
*		
* THE FOLLOWING ROUTINE TESTS THE OPERATION		
* OF THE SAVE, INSERT, AND THE RELEASE CONTROLS.		
* IT IS ONLY TESTED ON THE FIRST PASS THROUGH.		
*		
03752 41 03932 00000	CDC NOP T46.0,,,	WILL BE REPLACED BY BRANCH TO T46.0
03764 16 03753 000M9	TFM *-11,49,10,	SET UP TO BYPASS THIS ROUTINE
ON SECOND TIME AROUND.		
*		
03776 16 00002 00-00	T45.0 TFM 2,0,9,	SET LOC 0,1,AND 2 TO 000
03788 34 00000 00102	RCTY	
03800 39 07163 00100	WATY NST,,,	TYPE OUT INSTRUCTIONS
03812 48 00000 00000	H ,,,	HALT FOR MANUAL OPERATION
03824 45 03848 00002	BNR *+24,2,,	TEST FOR RECORD MARK IN LOC 2
03836 43 03920 00000	BD *+84,0,,	TEST FOR 4 IN LOC 0
03848 46 03920 00100	BC1 *+72,,,	SKIP ERROR INDICATION IF SW1 ON
03860 46 03908 00300	BC3 *+48,,,	HALT INSTEAD OF TYPEOUT IF SW3 ON
03872 34 00000 00102	RCTY	
03884 39 06903 00100	WATY M45.0,,,	TYPE ERROR MESSAGE
03896 49 03920 00000	B *+24	
03908 48 00000 00000	H ,,,	SAVE OR INSERT FAILED
03920 46 03776 00200	BC2 T45.0,,,	LOOP IF SW2 ON
*		
*		
03932 46 03944 00600	T46.0 BI *+12,600,,	RESET ALL DATA CHECK INDICATORS
03944 46 03956 00700	BI *+12,700,,	
03956 46 03968 00800	BI *+12,800,,	
03968 46 03980 01600	BI *+12,1600,,	RESET MBRE
03980 46 03992 01700	BI *+12,1700,,	RESET MBRO
03992 46 04004 02100	BI *+12,2100,,	

04004	46	04016	02200		BI	*+12,2200,,	
04016	46	04028	02300		BI	*+12,2300,,	
04028	46	04040	03600		BI	*+12,3600,,	
04040	46	04052	03700		BI	*+12,3700,,	
04052	46	04064	03800		BI	*+12,3800,,	
*							
04064	47	04148	01900		BNA	*+84,,,	ANY DATA CHECK SHOULD BE OFF
04076	46	04148	00100		BC1	*+72	
04088	46	04136	00300		BC3	*+48	
04100	34	00000	00102		RCTY		
04112	39	06983	00100		WATY	M46.0,,,	TYPE ERROR MESSAGE
04124	49	04148	00000		B	*+24	
04136	48	00000	00000		H	,,,	COULDNT RESET ANY DATA CHECK
04148	46	03932	00200		BC2	T46.0,,,	LOOP IF SW2 ON
*							
*							
04160	34	04208	00102		RCTY	*+48	
04172	39	07259	00100		WATY	TU	
04184	16	04161	000M9		TFM	*-23,49,10,	REPLACE NOP WITH BRANCH
04196	48	00000	00000		H		
04208	46	01184	00400	MH	BC4	T24.5,,,	REPEAT PROGRAM IF SW4 ON
04220	36	00000	00500		RNCD	,,,	READ FIRST LOAD CARD
04232	36	00072	00500		RNCD	72,,,	READ SECOND LOAD CARD
04244	36	00201	00500		RNCD	201,,,	READ FIRST PROGRAM CARD
04256	45	00024	00209		BNR	24,209,,	NOT DTXXX, PROCESS THIS CARD
04268	49	00012	00000		B	12,,,	DTXXX, IGNORE FIRST CARD
*							
*							
*							
CONSTANTS USED IN TEST							
04280	00001	ZERO	DC	1,0			
04281	00009		DSC	9,123456789			
04290	00001	R/M	DSC	1,'			
04296	00006	FLD1	DC	6,19375'			
04302	00006	FLD2	DC	6,-64208'			
04312	00010	ZEROS	DC	10,0			
04322	00010	WRK	DC	10,0,,			TEN DIGIT WORK AREA
ERROR MESSAGES FOR HEADER TEST							
*							
04325	00035	M10.0	DAC	35,TEST T10.0, BC1 FAILED WITH SW1 ON'			
04395	00035	M11.0	DAC	35,TEST T11.0, BC2 FAILED WITH SW2 ON'			
04465	00035	M12.0	DAC	35,TEST T12.0, BC3 FAILED WITH SW3 ON'			
04535	00035	M13.0	DAC	35,TEST T13.0, BC4 FAILED WITH SW4 ON'			
04605	00043	M14.0	DAC	43,TEST T14.0, BI P,4100 BRANCHED ERRONEOUSLY'			
04691	00043	M15.0	DAC	43,TEST T15.0, BI P,4200 BRANCHED ERRONEOUSLY'			
04777	00043	M16.0	DAC	43,TEST T16.0, BI P,4300 BRANCHED ERRONEOUSLY'			
04863	00043	M17.0	DAC	43,TEST T17.0, BI P,4400 BRANCHED ERRONEOUSLY'			
04949	00043	M18.0	DAC	43,TEST T18.0, BI P,0500 BRANCHED ERRONEOUSLY'			
05035	00038	M19.0	DAC	38,TEST T19.0, BNC1 BRANCHED WITH SW1 ON'			
05111	00037	M20.0	DAC	37,TEST T20.0, BNC1 FAILED WITH SW1 OFF'			
05185	00037	M21.0	DAC	37,TEST T21.0, BNC2 FAILED WITH SW2 OFF'			
05259	00037	M22.0	DAC	37,TEST T22.0, BNC3 FAILED WITH SW3 OFF'			
05333	00037	M23.0	DAC	37,TEST T23.0, BNC4 FAILED WITH SW4 OFF'			
05407	00038	M24.0	DAC	38,TEST T24.0, BC2 BRANCHED WITH SW2 OFF'			
05483	00037	M24.5	DAC	37,TEST T24.5, NOP INSTRUCTION BRANCHED'			
05557	00039	M24.6	DAC	39,TEST T24.6, NOP INSTRUCTION SET MAR CK'			
05635	00034	M25.0	DAC	34,TEST T25.0, BNR BRANCHED ON A R/M'			
05703	00032	M26.0	DAC	32,TEST T26.0, BNR OPN FAILED ON 2'			
05767	00032	M27.0	DAC	32,TEST T27.0, BNR OPN FAILED ON 8'			

05831	00031	M28.0	DAC	31,TEST T28.0, BD OPN FAILED ON 1'	
05893	00031	M29.0	DAC	31,TEST T29.0, BD OPN FAILED ON 2'	
05955	00031	M30.0	DAC	31,TEST T30.0, BD OPN FAILED ON 4'	
06017	00031	M31.0	DAC	31,TEST T31.0, BD OPN FAILED ON 8'	
06079	00031	M32.0	DAC	31,TEST T32.0, BD OPN FAILED ON 0'	
06141	00037	M33.0	DAC	37,TEST T33.0, BNF OPN FAILS ON NO FLAG'	
06215	00036	M34.0	DAC	36,TEST T34.0, BNF OPN FAILS ON A FLAG'	
06287	00037	M35.0	DAC	37,TEST T35.0, TDM OPN FAILS ON A FLAG?'	
06361	00036	M36.0	DAC	36,TEST T36.0, TDM OPN FAILS ON A ZERO?'	
06433	00036	M37.0	DAC	36,TEST T37.0, TD OPN FAILS ON A FLAG8?'	
06505	00035	M38.0	DAC	35,TEST T38.0, TD OPN FAILS ON A ZERO?'	
06575	00028	M39.0	DAC	28,TEST T39.0, SET FLAG FAILED'	
06631	00030	M40.0	DAC	30,TEST T40.0, CLEAR FLAG FAILED'	
06691	00027	M41.0	DAC	27,TEST T41.0, TFM OPN FAILED'	
06745	00026	M42.0	DAC	26,TEST T42.0, TF OPN FAILED'	
06797	00026	M43.0	DAC	26,TEST T43.0, TR OPN FAILED'	
06849	00027	M44.0	DAC	27,TEST T44.0, BTM OPN FAILED'	
06903	00040	M45.0	DAC	40,TEST T45.0, SAVE OR INSERT OPN NOT DONE'	
06983	00033	M46.0	DAC	33,T46.0, CANT RESET ANY DATA CHECK'	
* MESSAGES FOR CONSOLE SWITCH TEST					
07049	00028	VIM1	DAC	28,SET ALL PROGRAM SWITCHES ON'	
07105	00029	VIM2	DAC	29,SET ALL PROGRAM SWITCHES OFF'	
* INSTRUCTIONS FOR SAVE TEST					
07163	00027	NST	DAC	27,PRESS SAVE,INSERT,KEY IN 42,	
07216	00002		DSC	2,22	
07219	00020		DAC	20,,RELEASE AND START.'	
07259	00029	TU	DAC	29,HEADER TEST COMPLETE. SET SW4,	
07317	00023		DAC	23, AS DESIRED AND START.'	
07363	00025	HDR	DAC	25,DTX01,1620-1 HEADER TEST'	
07413	00039		DAC	39,RM DIDNT DISCONNECT TW,GARBAGE FOLLOWS'	
00440			DEND	START	

## DT X01 80/80 LIST

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